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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/469,162	12/21/1999	MINORU MIYATAKE	Q57339	4626

7590 02/14/2003

SUGHRUE MION ZINN MACPEAK & SEAS PLLC  
2100 PENNSYLVANIA AVE NW  
WASHINGTON, DC 20037

EXAMINER

CHUNG, DAVID Y

ART UNIT PAPER NUMBER

2871

DATE MAILED: 02/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/469,162

Applicant(s)

MIYATAKE ET AL.

Examiner

David Y. Chung

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 August 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-10 rejected under 35 U.S.C. 103(a) as being unpatentable over Ouderkirk et al. (U.S. 5,825,543) in further view of Hiji et al. (U.S. 5,953,089).

As to claims 1, 9 and 10, Ouderkirk et al. discloses an optical film wherein the index of refraction of continuous and disperse phases are substantially matched along a first orthogonal axis and substantially mismatched along a second orthogonal axis. The indices differ by no more than 0.03 along a matched axis and differ by at least 0.07 along a mismatched axis. This type of scheme provides a high degree of control in providing optical bodies of consistent and predictable high quality performance. See column 7, lines 30 – 37.

Ouderkirk teaches the following regarding the effect of index match/mismatch:

"In the preferred embodiment, the materials of at least one of the continuous and disperse phases are of a type that undergoes a change in refractive index upon orientation. Consequently, as the film is oriented in one or more directions, refractive index matches or mismatches are produced along one or more axes. By careful manipulation of orientation parameters and other processing conditions, the positive or negative birefringence of the matrix can be used to induce diffuse reflection or

transmission of one or both polarizations of light along a given axis. The relative ratio between transmission and diffuse reflection is dependent on the concentration of the disperse phase inclusions, the thickness of the film, the square of the difference in the index of refraction between the continuous and disperse phases, the size and geometry of the disperse phase inclusions, and the wavelength or wavelength band of the incident radiation. The magnitude of the index match or mismatch along a particular axis directly affects the degree of scattering of light polarized along that axis. In general, scattering power varies as the square of the index mismatch. Thus, the larger the index mismatch along a particular axis, the stronger the scattering of light polarized along that axis. Conversely, when the mismatch along a particular axis is small, light polarized along that axis is scattered to a lesser extent and is thereby transmitted specularly through the volume of the body." (Column 7, lines 39 – 64)

Hiji et al. discloses a conventional liquid crystal display structure with a light-diffusing plate formed on the polarizing plate. Note light-diffusing layer 30 and polarizing plate 70 in figure 2. Liquid crystal displays with light-diffusing layers were well known and obvious for being capable of displaying images of high brightness. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to laminate a light-diffusing plate to the polarizing plate of a liquid crystal display in order to enhance the brightness.

As to claim 2, thermoplastic liquid crystal polymer with the recited chemical structure was well known and obvious for showing liquid crystal characteristics within a predetermined temperature range. It would have been obvious to one of ordinary skill in the art at the time of invention to use this liquid crystal polymer in the optical film of Ouderkirk et al. because it exhibits liquid crystal characteristics within a specific temperature range.

As to claims 3 and 4, the range claimed by applicant for the length of the dispersed liquid crystal polymer particles is very broad and virtually non-limiting. The length of liquid crystal polymer particles formed by all known conventional methods is well within this range. It would have been obvious to one of ordinary skill in the art at the time of invention to form particles with lengths between 0.05 and 500 microns because this encompassed the entire practical range.

As to claims 5-8, Ouderkirk et al. teaches that the disclosed optical body can consist of a multi-layer film as shown in figure 5.


### ***Response to Arguments***

Applicant's arguments with respect to claims 1-10 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Chung whose telephone number is (703) 306-0155. The examiner can normally be reached on Monday-Friday from 8:30 am to 5:00 pm.

David Chung  
GAU 2871  
02/07/03

  
ROBERT A. MINK  
SUPERVISOR  
TECHNOLOGY CENTER 2800